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No. 88-605

IN THE
Supreme Court of the United States
OCTOBER TERM, 1988

WILLIAM L. WEBSTER, *et al.*,
Appellants,

v.

REPRODUCTIVE HEALTH SERVICES, *et al.*,
Appellees.

On Appeal from the United States Court of Appeals for the Eighth Circuit

AMICI CURIAE BRIEF OF 167 DISTINGUISHED SCIENTISTS AND PHYSICIANS, INCLUDING 11 NOBEL LAUREATES, IN SUPPORT OF APPELLEES †

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AMICI CURIAE BRIEF OF 167 DISTINGUISHED SCIENTISTS AND PHYSICIANS, INCLUDING 11 NOBEL LAUREATES, IN SUPPORT OF APPELLEES

DESCRIPTION AND INTEREST OF *AMICI CURIAE*

Amici are distinguished scientists and physicians having specialized training and expertise in, among others, the fields of developmental biology, neurobiology, molecular biology and obstetrics and gynecology. *Amici* have been recognized for their contributions to their respective fields. Eleven of *amici*, for example, have been awarded the Nobel Prize in their respective disciplines. A complete list of *amici* and their professional affiliations appears in the Appendix.

Amici have observed that appellants and some *amici* urging that *Roe* v. *Wade*, 410 U.S. 113 (1973), be overruled have purported to ground their arguments, in part,

upon alleged scientific "truth." For example, appellants characterize the proposition that life begins at conception as a "biological fact," comparable to the "truth" that the "Earth still moves around the sun." (Brief for Appellants, p. 26.) Other *amici* aligned with appellants have asserted that subsequent advancements in science since *Roe* v. *Wade* was decided have rendered the decision obsolete.

As scientists, *amici* have a special ability to provide the Court with accurate scientific information bearing upon such arguments. *Amici* also have a unique interest in seeing that scientific learning is not distorted or misused in arguments concerning abortion. Accordingly, *amici* submit this brief supporting appellees.

SUMMARY OF ARGUMENT

There is no scientific consensus that a human life begins at conception, at a given stage of fetal development, or at birth. The question of "when a human life begins" cannot be answered by reference to scientific principles like those with which we predict planetary movement. The answer to that question will depend on each individual's social, religious, philosophical, ethical and moral beliefs and values.

Science can, however, provide answers to certain concrete questions regarding prenatal development that have arisen in the controversy over abortion and *Roe* v. *Wade*, 410 U.S. 113 (1973). For example, appellants and several *amici* assert that medical advances are undermining *Roe* v. *Wade* by moving the point of fetal viability briskly and inexorably toward the date of conception. Science is capable of addressing—and in this case refuting—such arguments.

The earliest point of viability has remained virtually unchanged at approximately 24 weeks of gestation since 1973, and there is no reason to believe that a change is either imminent or inevitable. The reason that viability

has not been pushed significantly back toward the point of conception is that critical organs, particularly lungs and kidneys, do not mature before that time. Progress in science, therefore, has not made obsolete the trimester framework based on viability articulated in *Roe* v. *Wade*. The trimester framework, moreover, corresponds with another aspect of fetal development—the chronology of human brain development. Not until after 28 weeks of gestation does the fetus attain sufficient neocortical complexity to exhibit those sentient capacities that are present in full-term newborns. In lay terms, the capacity for the human thought process as we know it cannot exist until sometime after 28 weeks of gestation.

This Court's decision in *Roe* v. *Wade* is as well grounded in "biological justifications," 410 U.S. at 163, today as in 1973, and the basic chronology of human development recognized in the Court's opinion remains accurate. Accordingly, the Court should reject arguments for overruling the decision because of alleged inconsistency with scientific advancement or "truth."

ARGUMENT

I. THERE IS NO SCIENTIFIC CONSENSUS ON WHEN A HUMAN LIFE BEGINS

Appellants and several *amici* aligned with them argue that the controversy over abortion and *Roe* v. *Wade*, 410 U.S. 113 (1973), may be resolved by what they contend is scientific "truth." Appellants, for example, contend that, as surely as "[t]he Earth still moves around the sun," it is an undisputed "biological fact" that a human life begins at conception.[1] Certain *amici* likewise argue that *Roe* v. *Wade* is contrary to an alleged "scientific truth" or "fact" that life begins at conception.[2] Others

[1] Brief for Appellants at 26.

[2] *See, e.g.*, Brief *Amicus Curiae* of Hon. Christopher H. Smith, Hon. Alan B. Mollohan, Hon. John C. Danforth, and Other United

cite alleged technological advances as the justification for reconsidering and overruling *Roe* v. *Wade*.[3]

Amici submit that such arguments are an attempt to distort the teachings of science to fit preconceived conclusions based upon values that science alone does not and cannot dictate. The question of when a human life begins cannot be answered with reference to a scientific law or principle, such as the empirically-testable propositions with which we predict planetary movement. Individual scientists will have individual answers to that question, based upon their individual values and beliefs. These answers do not represent any "scientific" truth, because they are based upon values and beliefs, not upon science alone.

The only "consensus" that may be said to exist among scientists on the question of when a human life begins is that science alone cannot answer that question. This is demonstrated by the response of the scientific community when in 1981 a Senate subcommittee held hearings on a bill to declare "that present day scientific evidence indicates a significant likelihood that actual human life exists from conception." *See The Human Life Bill: Hearings Before the Subcommittee on Separation of Powers of the Senate Committee on the Judiciary*, 97th Cong., 1st Sess. (1981) [hereinafter *Hearings*]. As distinguished scientists testified, science alone does not provide the answer to this question.

States Senators and Members of Congress at 21; Brief *Amici Curiae* of Doctors for Life, Missouri Doctors for Life, Missouri Citizens for Life, Missouri Nurses for Life, and Lawyers for Life, Inc. at 21-23; *Amicus* Alabama Lawyers for Unborn Children, Inc. at 13-17; Brief for *Amicus Curiae*, The New England Christian Action Council, Inc. at 7.

[3] *See, e.g.*, Brief for the United States as *Amicus Curiae* at 19; Brief of the Knights of Columbus as *Amicus Curiae* at 6.

For example, Dr. Leon Rosenberg, then Chairman of the Department of Human Genetics, Yale University Medical School, and a signatory of this brief, testified:

> When does this potential for human life become actual? As a scientist, I must answer I do not know. Moreover, I have not been able to find a single piece of scientific evidence which helps me with that question.
>
> Not surprisingly, a great deal has been spoken and written on the subject. Some people argue, as you have heard, that life begins at conception . . . .
>
> I have no quarrel with anyone's ideas on this matter so long as it is clearly understood that they are personal beliefs based on personal judgments and not scientific truths.

Id. at 50.

Dr. Rosenberg then explained the reason science alone cannot answer the question—the inability to test the hypothesis by the scientific method:

> The scientific method depends on two essential things—a thesis or idea and a means of testing that idea. Scientists have been able to determine, for instance, that the Earth is round or that genes are composed of DNA because, and only because, experiments could be performed to test these ideas. Without experiments there is no science, no way to prove or disprove any idea. I maintain that concepts such as humanness are beyond the purview of science because no idea about them can be tested experimentally.

Id.

The National Academy of Sciences was equally emphatic:

> It is the view of the National Academy of Sciences that the statement in [Senate Bill S. 158] cannot stand up to the scrutiny of science. This section reads, "The Congress finds that present day scientific

> evidence indicates a significant likelihood that actual human life exists from conception." This statement purports to derive its conclusions from science, but it deals with a question to which science can provide no answer. The proposal in S158 that the term "person" shall include "all human life" has no basis within our scientific understanding. Defining the time at which the developing embryo becomes a person must remain a matter of moral or religious value.

Id. at 74. *See also id.* at 1035-36 (statement of Joseph Boyle, M.D., chairman of the board of trustees of the American Medical Association) (there is no scientific consensus that a human life begins at conception; that question goes "far beyond the realm of medical science and into social, religious, philosophical, ethical, and moral concerns").

As shown in the next section of this brief, science can indeed provide valuable information and can answer concrete questions regarding prenatal development by identifying, for example, the stages of fetal brain development. But the question of when a human life truly begins calls for a conclusion as to which characteristics define the essence of human life. While science can tell us when certain biological attributes can be detected, science cannot tell us which biological attributes establish the existence of a human being.

Many other physicians and scientists made these observations at the 1981 hearings. *See, e.g., id.* at 68 (statement of Robert H. Ebert, M.D., President of Milbank Memorial Fund, Caroline Shields Walker Professor of Medicine Emeritus, Harvard University) (whether a human life begins at conception is not a medical or scientific question, but a philosophical and religious question that "can be debated endlessly and has to do with how one defines a person and 'self' "); *id.* at 69-70 (statement of Sherman M. Mellinkoff, M.D., Dean of the UCLA

School of Medicine) (same); *id.* at 71 (statement of Arno G. Motulsky, M.D., Professor of Medicine and Genetics, University of Washington) (same); *id.* at 113-14 (statement of Dr. Jessica G. Davis, Director, Child Development Center, Chief, Division of Genetics, North Shore University Hospital) (same). The subcommittee also received hundreds of letters from scientists and physicians across the country echoing Dr. Rosenberg's views. *See e.g., Hearings app.* at 414, 669, 716, 718.[4]

Science cannot define the essential attributes of human life any more than science can define such concepts as love, faith or trust. *Hearings* at 50. This Court was indisputably correct when it observed in *Roe* v. *Wade*, 410 U.S. at 159, that the question of when a human life begins cannot simply be referred to an expert discipline for resolution.

Science can, however, offer to this controversy concrete information concerning the physiology of prenatal development—particularly, scientific observations about viability and brain development. As shown below, these observations support the chronology of fetal development recognized in *Roe* v. *Wade*.

---

[4] The fact that the subcommittee itself could not reach agreement on the question further highlights the inability to find the answer in scientific truth. *The Human Life Bill—S. 158: Report by the Subcommittee on Separation of Powers, Senate Committee on the Judiciary*, 97th Cong., 1st Sess. 39, 41 (1981) (minority view of Senator Baucus) ("If the hearings on S. 158 held by the Separation of Powers Subcommittee were conclusive on any point it is that in 1981 there remains no consensus among scientists, philosophers and theologians on the question of when life begins."). Indeed, the current Commissioner of the Food and Drug Administration, Frank E. Young, M.D., stated in 1981 that "science and medicine cannot unequivocally establish the time in the continuum of development where human life begins"; the decision is "in part moral, ethical, philosophical and religious." *Hearings app.* at 781.

II. *ROE* v. *WADE* HAS NOT BEEN RENDERED OBSOLETE BY SUBSEQUENT ADVANCEMENTS IN SCIENCE

Appellants and several *amici*, including the United States, cite developments in science and technology as a justification for reconsidering and overruling *Roe* v. *Wade*, 410 U.S. 113 (1973). Citing Justice O'Connor's dissenting opinion in *City of Akron* v. *Akron Center for Reproductive Health*, 462 U.S. 416, 456-58 (1983), these litigants and aligned *amici* suggest that there has been enormous movement in the point of viability since 1973.[5] Although Justice O'Connor's opinion in *Akron* stated that "fetal viability in the first trimester of pregnancy *may be possible* in the not too distant future," *id.* at 457 (emphasis added), these advocates have tried to use her observations to catapult themselves to the conclusion that the point of viability is marching briskly and inexorably toward the date of conception because of technological change.[6]

Assertions that viability has moved significantly earlier in fetal development are flatly contrary to the scientific evidence. Although advances in technology have improved the chances of survival for premature birth *within* the range of 24 to 28 weeks, the *outer limit* of viability at 24 weeks has not significantly changed. Moreover, there is no reason to believe that a change in this outer limit is either imminent or inevitable.

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[5] *See, e.g.*, Brief for Appellants at 12-14; Brief for the United States as *Amicus Curiae* at 19; Brief of the Association for Public Justice, and the Value of Life Committee, Inc., as *Amici Curiae* at 25; Brief of Catholics United for Life, National Organization of Episcopalians for Life, Presbyterians Pro-Life, American Baptist Friends of Life, Baptists for Life, Southern Baptists for Life, Lutherans for Life, Moravians for Life, United Church of Christ Friends for Life, Task Force of United Methodists on Abortion and Sexuality, and the Christian Action Council as *Amici Curiae* at 19, 21.

[6] *See, e.g.*, Brief for Appellants at 12-14.

A. The Point Of Viability Has Not Changed Significantly Since 1973 And Such Change Is Not Likely To Occur In The Foreseeable Future

In *Roe* v. *Wade*, 410 U.S. at 160, this Court recognized that viability occurs at approximately 24 to 28 weeks of gestation. In *Colautti* v. *Franklin*, 439 U.S. 379 (1979), the Court emphasized that the date of viability was not intended to be fixed and arbitrary, but rather left "flexible for anticipated advancements in medical skill." *Id.* at 397. The Court further stated: "Viability is reached when, in the judgment of the attending physician on the particular facts of the case before him, there is a reasonable likelihood of the fetus' sustained survival outside the womb, with or without artificial support." *Id.* at 388.

Since *Roe* v. *Wade* was decided, great strides have been made in medicine, but the significance of those strides should not be misunderstood. Advances in medical technology have enhanced the probability of survival of infants born prematurely at 24 weeks and later. *See, e.g.*, Gerdes, Abbasi, Bhutani & Bowen, *Improved Survival and Short-Term Outcome of Inborn "Micropremies,"* 25 Clinical Pediatrics 391, 393 (1986); Buckwald, Zorn & Egan, *Mortality and Follow-up Data for Neonates Weighing 500 to 800 g at Birth*, 138 American Journal of Diseases of Children 779 (1984); Pleasure, Dhand & Kaur, *What is the Lower Limit of Viability*, 138 American Journal of Diseases of Children 783 (1984).

However, these advances have *not* significantly changed the earliest date of viability, which remains approximately at the 24-week mark recognized in *Roe* v. *Wade*. *See, e.g.*, Pleasure, Dhand & Kaur, *What is the Lower Limit of Viability*, 138 American Journal of Diseases of Children 783 (1984); Milner & Beard, *Limit of Fetal Viability*, 1 Lancet 1079 (1984); Koops, Morgan & Battaglia, *Neonatal Mortality Risk in Relation to Birth Weight and Gestational Age: Update*, 101 Journal of

Pediatrics 969-77 (1982). Thus, the scientific evidence supports the finding made by the District Court:

> Testimony by medical experts for both plaintiffs and defendants, in addition to recent medical literature, provides clear evidence that 23 1/2 to 24 weeks gestation is the earliest point in pregnancy where a reasonable probability of viability exists.

Reproductive Health Services v. *Webster*, 662 F. Supp. 407, 420 (W.D. Mo. 1987) (citations omitted).

The reason that viability has not advanced to a point significantly earlier than 24 weeks of gestation is that critical organs, particularly the lungs and kidneys, do not mature before that time. While a number of factors, such as immaturity of the immune system, contribute to the mortality rate for premature infants, the most important determinant of viability is lung development—specifically, the development of the air sacs through which gases are passed into and out of the blood stream.

Air sac development sufficient for gas exchange does not occur until at least 23 weeks after gestation and often later. Report of the Committee on Fetal Extrauterine Survivability to the New York State Task Force on Life and the Law, *Fetal Extrauterine Survivability* 7 (1988) (hereinafter *Fetal Extrauterine Survivability*). Respirators have been developed that significantly enhance the operation of immature air sacs,[7] but no known technology will accelerate the date at which air sacs begin to form and to link up with the crucial blood vessels. For example, Dr. John Kattwinkel, a member of the American Academy of Pediatrics's fetus and newborn committee, has stated:

> At 24 weeks or less, fetal lung development is at a glandular stage and the lung capillaries have not migrated into the airways. You can't force respiration when there is no surface through which to exchange gases. Oxygen simply cannot reach the blood no matter how much air is forced into the lungs by machine.

[7] *See* Beddis, Collins, Levy, Godfrey & Silverman, *New technique for servo-control of arterial oxygen tension in preterm infants*, 54 Archives of Disease in Childhood 278-80 (1979).

Pollner, *Abortion: Are medicine and the law on a collision course?*, Medical World News, July 8, 1985, at 73. *See also Fetal Extrauterine Survivability* at 7 ("Clinical experience and anatomic studies suggest that gas exchange is almost never possible before 23 weeks of gestation, but is not uncommon after 26 weeks.").[8] There are no medical developments anticipated in the foreseeable future that would bring about adequate fetal lung function prior to 23 to 24 weeks of gestation.

A minimal level of kidney development is also a prerequisite of viability. As observed in *Fetal Extrauterine Survivability*:

> Although the maturational limitations in renal function are an important factor in the morbidity and mortality of [premature] infants with a gestational age less than 26 weeks, renal function is generally not the sole determinant of survival—even down to 24 weeks of gestation. In the earlier 20-24 week gestational period, inadequate kidney development potentially determines fetal survivability.

Fetal Extrauterine Survivability at 6 (footnote omitted).

Amici agree with the overall conclusions expressed in *Fetal Extrauterine Survivability*:

> The increasing ability over the past decade to save progressively younger neonates is primarily due to

[8] Air sac development is not the only aspect of lung development that affects viability; it is, however, the factor that sets the outside limit of lung function. For example, the lungs cannot operate without an adequate supply of surfactant, a chemical which prevents the air sacs from collapsing. Inadequate surfactant production is a significant cause of premature infant mortality. The development of surfactant-producing cells cannot be considered an absolute and independent limitation on viability, however, inasmuch as surfactant does not even come into play until the air sacs reach the level of structural sophistication needed to sustain life.

> the ability to support and assist, at an earlier age, the organs already present in the fetus. The developmental biology of the fetus, however, has not changed. After reviewing the developmental biology of several crucial fetal organs, including the brain, the kidneys, and the lungs, the Committee concluded that a point exists before which the fetal organs are too immature to function, even with the assistance of sophisticated medical technology. This point in time is 23-24 weeks of gestation; *prior to that time, fetal life cannot be maintained outside the womb.*

Id. at 9 (emphasis added).[9]

These conclusions are not contradicted by the studies cited in footnote five of Justice O'Connor's dissenting opinion in *Akron*, 462 U.S. at 457 n. 5, which were characterized as having "demonstrated increasingly earlier fetal viability." One study—Phillip, Little, Polivy & Lucey, *Neonatal Mortality Risk for the Eighties: The Importance of Birth Weight/Gestational Age Groups*, 68 Pediatrics 122 (1981)—presents data on premature infant mortality at two medical centers. At one center, data were presented for 523 premature infants treated in an intensive care nursery between 1976 and 1979; of these, five were 25 weeks of gestation or less and only one of the five survived. *Id.* at 125, Table 4.[10] The data from a second regional medical center showed that infants born alive with a gestational age of less than 25 weeks and weight between 500 and 1,249 grams had only

[9] It should also be noted that even the advance of viability from 24 to 23 weeks is still largely hypothetical. In fact, it is very rare for a fetus delivered before 24 weeks to survive. *See, e.g.*, Milner & Beard, *Limit of Fetal Viability*, 1 Lancet 1079 (1984).

[10] Two of these premature babies weighed between 500 and 749 grams and both died; one baby weighed between 750 and 999 grams and died; and two babies weighed between 1,000 and 1,249 grams and one survived.

a 9% survival rate. *Id.* The data in the study do not support the proposition that the point of fetal viability has been moved significantly closer to conception.

The same observations apply to other studies cited in the footnote, and two authors of studies cited there have disassociated themselves from any attempt to use their work as a basis for inferring a shift of the point of viability. For example, Dr. Arthur E. Kopelman, Head of Neonatology at East Carolina School of Medicine—whose study, *The Smallest Preterm Infants: Reasons for Optimism and New Dilemmas*, 132 American Journal of Diseases of Children 461 (1978) is cited at 462 U.S. at 457 n. 5—subsequently commented:

> I would respond emphatically that my article does not in any way, shape or form support such a contention. Furthermore, I know of no current research which would lead me to believe that a fetus of less than 22 weeks of gestation can be or soon will be able to be sustained outside the uterus . . . .
>
> Below 24 weeks of gestation the fetus' lungs are simply not adequately developed to sustain oxygenation even with ventilator support.

Law, *Rethinking Sex and the Constitution*, 132 U. Pa. L. Rev. 955, 1023-24 n.245 (1984) (quoting Dr. Kopelman's communication).[11]

[11] Similarly, Dr. Leo Stern, Professor and Chairman of Pediatrics at Brown University and the author of *Intensive Care for the Pre-Term Infant*, 26 Danish Med. Bull. 144 (1979), cited at 462 U.S. at 457 n.5, subsequently wrote:

> It may well be that some of the other references quoted in the footnote have demonstrated "increasingly earlier fetal viability," but that is certainly not what I said in my article . . . . It is highly likely that the lower limit beyond which human gestation is simply incapable of survival has already been virtually reached in its entirety, at least insofar as we intend such survival to be possible without the intervention of some

In short, the basic scientific observations concerning the outer limit of viability recognized in *Roe* v. *Wade* remain accurate.

B. The Organic Capacity For Human Thought Is Absent Until After 28 Weeks Of Gestation

Roe v. *Wade* established a trimester-based framework for evaluating the interests of a state in protecting fetal life. That framework was supported by reference to the concept of viability. While not mentioned by the Court in *Roe* v. *Wade*, it is also true that the trimester-based framework corresponds to the chronology of fetal brain development. It is not until sometime after 28 weeks of gestation that the fetal brain has the capacity to carry on the same range of neurological activity as the brain in a full-term newborn.

Fetal brain development is obviously a long and incremental process. Brain cells in the neocortex, the portion of the brain in which the processes we call thought, emotion and consciousness occur, must be sufficiently developed to permit this kind of neurological activity to take place. At about 28 weeks of gestation, brain development is marked by the sudden emergence of dendritic spines in the neocortex. Dendritic spines are essential components in the brain's cellular circuitry.[12]

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form of artificial extrauterine environment that could be provided by the successful creation of an artificial placenta.

Law, *Rethinking Sex and the Constitution*, 132 U. Pa. L. Rev. 955, 1023-24 n.245 (1984) (quoting Dr. Stern's communication).

Regarding the development of an artificial placenta, Dr. Stern observed:

> Even if such a procedure could be successfully achieved, not only are its economic costs staggering to imagine but the potential for ever being able to supply the technology in sufficiently large numbers of units to make any kind of impact on the total number of threatened or spontaneously terminated first term gestations would be in practical terms most unlikely.

Id.

[12] M. Flower, *Neuromaturation and the Moral Status of Human Fetal Life* in ABORTION RIGHTS AND FETAL PERSONHOOD 71, 77 (Doerr & Prescott ed. 1989) (emphasis in original) (forthcoming).

One study has indicated that neocortical cells possess no dendritic spines as late as 24 to 27 weeks of gestation.[13] It is also at that time that large-scale neocortical synaptogenesis (the development of neural connections between brain cells in the neocortex) begins,[14] although limited synaptogenesis may begin as early as 19 to 22 weeks of gestation.[15]

Some primitive motor activities, such as swallowing and spontaneous movement of limbs, begin between eight and thirteen weeks of gestation.[16] However, the thalamocortical connections which are prerequisites for neocortical reception of bodily sensation do not begin to develop until approximately 22 or 23 weeks.[17] In addition, regular patterned electroencephalograms (EEGs) with characteristics of an adult EEG appear at approximately 30 weeks.[18] Of course, the fact that the fetus develops the bare biological capacity for crucial neurological processes does not necessarily mean that these neurological processes actually begin to occur in this period. Indeed, the cerebral cortex is relatively nonfunctional even in normal newborns.[19]

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[13] D.P. Purpura, *Morphogenesis of Visual Cortex in the Preterm Infant* in GROWTH AND DEVELOPMENT OF THE BRAIN, 33, 46 (M.A.B. Brazier ed. 1975) (examining the visual cortex).

[14] *Id.* at 45-46.

[15] Molliver, Kostovic & Van Der Loos, *The development of synapses in cerebral cortex of the human fetus*, 50 *Brain Research* 403-07 (1973).

[16] Flower, *supra* note 12, at 75.

[17] Kostovic & Goldman-Rakic, *Transient Cholinesterase Staining in the Mediodorsal Nucleus of the Thalamus and its Connections in the Developing Human and Monkey Brain*, 219 Journal of Comparative Neurology 431-47 (1983); Kostovic & Rakic, *Development of Prestriate Visual Projections in the Monkey and Human Fetal Cerebrum Revealed by Transient Cholinesterase Staining*, 4 Journal of Neuroscience 25-42 (1984).

[18] Flower, *supra* note 12, at 79.

[19] Shewmon, Capron, Warwick & Schulman, *The Use of Anencephalic Infants as Organ Donors: A Critique*, 261 Journal of American Medical Association 1773-81 (1989).

The neurobiological data indicate that the fetus lacks the physical capacity for the neurological activities we associate with human thought until sometime after 28 weeks of gestation. In other words, the capacity for the human thought process as we know it cannot exist before that time. *Amici* believe that these neurobiological facts support the chronology of development this Court recognized in *Roe* v. *Wade*.

CONCLUSION

The parties and the various *amici* in this case may disagree about when a human life begins. Indeed, the signatories of this brief may, as individuals, have different answers to this fundamental question. But such differences are a product of philosophical, moral and religious differences which cannot be resolved by resort to scientific "truth" alone. Those who claim that the Court's decision in *Roe* v. *Wade* is refuted by scientific law or fact are merely expressing their own value judgments. *Amici* respectfully urge this Court to reject the assertion that *Roe* v. *Wade* should be overruled on the basis of alleged inconsistency with scientific "truth" and to reaffirm its decision in that case.

Respectfully submitted,

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March 30, 1989

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APPENDIX

APPENDIX

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